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Platinum Support Manual

General Release Volume

Volume C, version 1.0

Applicable to Build A7 = Prod41 onwards

May 19, 1998

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Other documentation

Before starting, you need to be aware of the information contained in the published HighWater manuals.

Platinum Installation Manual

This provides information on the installation of Platinum at a customer site. It leads you through the installation and calibration of the Platinum engine, the configuration of the workstation, and the creation and calibration of Page Setups on the Torrent RIP.

Platinum User Guide

This provides information for the user once Platinum has been installed and calibrated. It describes operation of the Platinum engine and of the layout software, together with how to use the Torrent RIP.

Torrent Installation Guide

This provides a thorough description of the installation of the Torrent RIP from scratch. This guide is regularly updated to keep track of changes to the RIP and to the Windows operating system.

Torrent User Guide

This is the OEM User Manual provided by Harlequin for all of their ScriptWorks-based products, and should be consulted for a detailed understanding of the operation of the Torrent RIP.

HighWater Output Spooler User Guide

This contains instructions on the installation and operation of the Spooler, together with appendices that describe its operation with associated software, including Platinum.

Version information

1.0	May 1998	First General Release Version Includes new coupling for leadscrew
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Tools and Spares

This section lists the tools that are required to perform the procedures in this manual, together with the spares that should be readily available.

HW indicates that the equipment is only available from HighWater.

Table 1: Tools List

Equipment Required	Procedures Used In	Notes
Allen keys, ball-end	Most	Set, size 1.5 to 10mm
Flat-head screw-drivers	Most	
Open-ended spanners	6	6, 7, 8 mm; 2 @ 13mm
Engineers Floppy Disk	Most	HW
Keyboard and monitor	Most	For use with Engineer's floppy
Dry Cloth	3	
Torque screwdriver	4,5,6	
Light Machine Oil	4,5,6,7,11	SAE 10-15, e.g. multi-purpose electrolube oil
Leadscrew Alignment Tool	6	HW. Used with old gimbal alignment system only
ESD grounding wrist-strap	8	Anti-static prevention
Steel rule (1 meter)	8	
Acetone	9	Optics cleaning fluid
IPA (Isopropyl Alcohol 99.7% pure)	9,11	Optics cleaning fluid
Lint-free cloth or lint-free cotton buds	9	
Pump dispenser	9,11	For the optics cleaning fluid
Torch	11	
Eye probe	11	
Optical Test Set	12, 13	HW
Differential Voltmeter	12, 13	
Laser Dongle	13,14	HW
Laser Power Meter	13,14	
Magnifier (100x)	15	
Spot Viewer	14	HW. Optical diagnostics equipment
Densitometer, e.g. Gretag	Many	Used for density calibrations

Table 2: Spares List

Equipment	Notes
Leadscrew, leadnut, coupling unit	It is recommended that these are kept as a complete set. Chapters 5 and 6.
Mass Damper	Chapter 4
Stepper Motor	Chapter 4
Pixel clock board	Chapter 8
Scan corrector board	Chapter 8
Motor drive board	Chapter 8
Data path board	Chapter 8
SCSI interface board	Chapter 8
Filter Wheel	Chapter 10
Mole	Chapter 11
Graticule	Chapter 11

C1. REMOVING THE PLATINUM LID AND THE OPTICS COVERS

C1.1 Introduction

Many of the procedures require that you remove the lid from the Platinum. Other procedures also require that you remove the covers from the Optics Carriage. This section describes how you would achieve both.

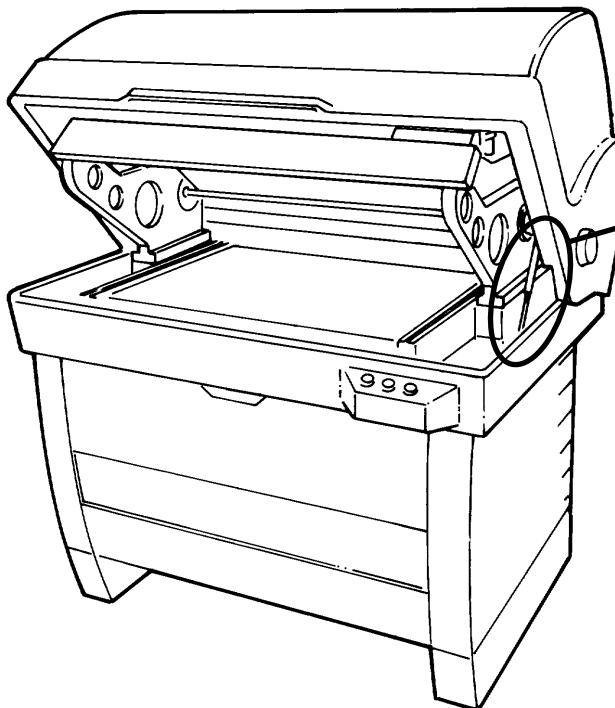
C1.2 Equipment

- Allen key to remove lid bolts

C1.3 Removing the Platinum Lid

This procedure requires two people to lift the lid off.

1. The two gas struts (one on either side of the Platinum lid) need to be disconnected. Unscrew them either at the top or the bottom (the bottom is easier to access).



One of the two gas struts which control how far the lid opens.

You must disconnect the gas struts, by unscrewing at either the top or the bottom, before you can lift the lid off.

2. There are 7 bolts on each side of the Platinum lid. Remove these bolts from the outside and store them somewhere safe.

3. With one person on either side of the Platinum, lift the lid clear, and place somewhere away from the machine.

C1.4 Removing the Optics covers

The Optics carriage has three covers, on the right and left sides together with a metal plate at the rear. These are attached with a set of screws. Unscrew these and store safely. Remove the covers and store safely.

C1.5 Protecting the Platinum Bed

The Platinum bed is made of a soft metal and can easily be damaged. You need to protect the bed from falling screws, oil drips, scrapes, etc.

Whenever you are servicing the Platinum, you should cover the Platinum bed with old metal plates to protect its surface.

C2. USING THE ENGINEER'S FLOPPY DISK

C2.1 Introduction

Many of the procedures described in this support manual require that you re-boot Platinum using the Engineer's floppy disk. This chapter describes this process.

C2.2 Equipment

- The Engineer's floppy disk (TTL disk).
- Keyboard and monitor to attach to the Processor unit. The connections are the standard ones for a PC, and the monitor can be just a basic one capable of displaying lists of DOS commands.

C2.3 Procedure

1. Ensure that Platinum has been powered down.
2. Insert the engineer's floppy disk into the disk drive on the Processor unit.
3. Press the Power button on the Processor unit.
4. Once the boot sequence has been completed, you will be presented with an initial menu:

MS-DOS 6.22 Startup Menu

- 1 Carriage
- 2 Vacuum
- 3 Moletest
- 4 Timescan
- 5 Expose
- 6 Filter
- 7 Shutter
- 8 Laser
- 9 TTL

Enter choice?

5. Enter the number of the menu item that you want to choose, and follow the instructions provided in the service procedure you are following (see the table on the next page):

Startup disk option	Brief Description
1. Carriage	Procedure 3, "Carriage Drive Test"
2. Vacuum	This tests the vacuum switching on and off.
3. Moletest	Procedure 11, "Changing the Mole and the Graticule"
4. Timescan	This gives an indication of the timings of the Platinum, such as the frequency of the galvo, timing of the scanner, etc.
5. Expose	This produces a 10×10 chequerboard on the Platinum bed.
6. Filter	Procedure 10, "Changing the Filter Wheel"
7. Shutter	This tests the opening and closing of the shutter.
8. Laser	This turns the laser on and opens the shutter. Used if the laser beam is required on the Platinum bed.
9. TTL	If all else fails, you may want to use this option. Check the TTL document, TR036, together with any necessary additional information.

C2.4 Completion

1. Shut down the software and switch off.
2. Remove floppy disk.
3. Complete the appropriate section of the machine checklist.

C3. GENERAL CLEANING

C3.1 Introduction

Build-ups of dirt tend to occur in the following locations:

- at both ends of the leadscrew
- at both ends of the guide-rails.

You also need to make sure that the fans located within each of the modules on the processor rack are free from dust and other obstructions.

C3.2 Equipment

- A dry cloth

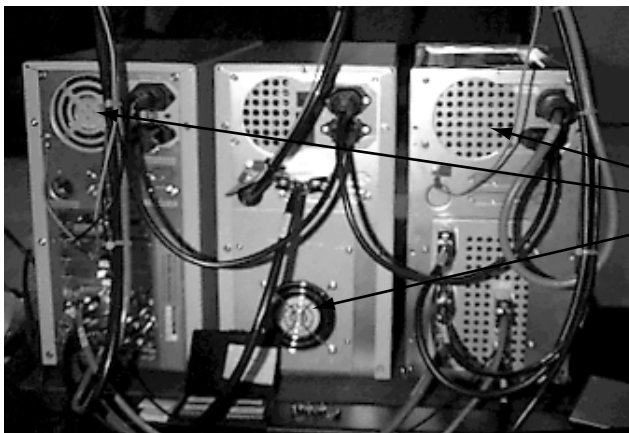
C3.3 Dirt pile-ups

Use the dry cloth to remove the dirt pile-ups.

Use the cloth to clean the leadscrew and the guide-rails.

C3.4 Fans

1. Ensure that the Platinum is disconnected at the mains.
2. Remove the back panel of the Platinum, to reveal the three units on the Processor rack.
3. The picture on the next page shows the location of the fans. Remove the panels of each unit, and clean the fans and the filters.



**There are three fans
located within the
processor rack**

C4. LUBRICATION

C4.1 Introduction

Both the leadscrew and the guide-rails need lubrication.

C4.2 Equipment

You need a light machine oil (SAE 10-15), for example a multi-purpose electrolube oil. 3-in-1 oil is too runny (although it may be used if you have absolutely no other option).

WARNING

- NEVER USE AEROSOL OR SPRAY OILS. THESE WILL CONTAMINATE THE OPTICS.
- VERY LITTLE OIL IS NEEDED: TOO MUCH OIL WILL DAMAGE THE PLATINUM.

C4.3 Procedure

The basic problem with applying the oil is that you must avoid any drips going onto the Platinum bed.

WARNING

**YOU MUST PROTECT THE PLATINUM BED
FROM OIL DRIPS.
COVER THE BED WITH OLD METAL PLATES TO
CATCH THE DRIPS.**

Applying oil to the guide-rails

You may use one of the following methods to apply the oil:

- Put a little oil onto the felt pads of the PTFE feet, and set the optics carriage to traverse left-to-right. OR:
- Put a little oil onto a rag and wipe the guide-rail with it.

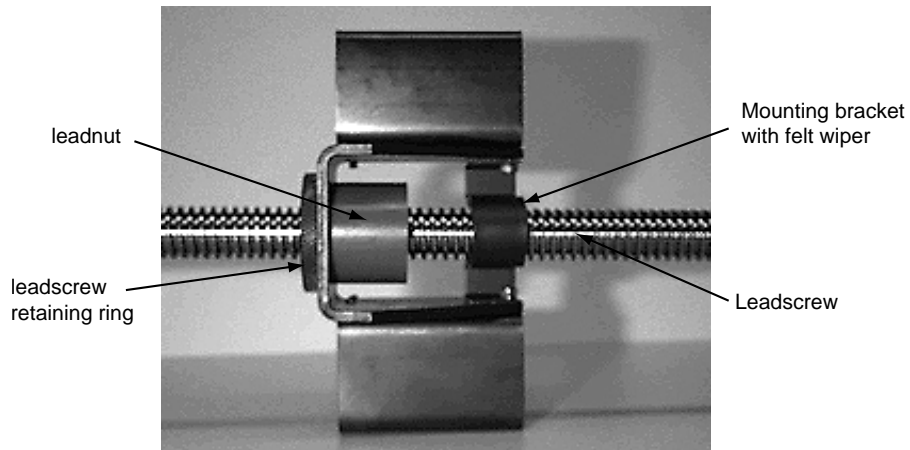
Applying oil to the leadscrew

This is only applicable if the old gimbal alignment system is in use - see procedure 6.

Place a little oil onto the felt wiper of the leadscrew, and set the optics carriage in motion.

Gimbal Unit from underneath

(removed from Platinum for clarity)



C5. CLEANING THE OPTICS

C5.1 Introduction

The Optics surfaces which are easily visible need to be cleaned regularly. Do not attempt to clean any optics surface which is not easily visible.

C5.2 Equipment

- For the Optics cleaning fluid, you should ideally use Acetone. If this is not available, use pure IPA (isopropyl alcohol), at least 99.7% pure.
- You will find it convenient to use a pump dispenser, so that you can use VERY small amounts of fluid at any one time.



- Use either a lint-free cloth or lint-free cotton buds to apply the cleaning fluid.
- You should use a torch, with which you can check whether the surfaces have been cleaned successfully.

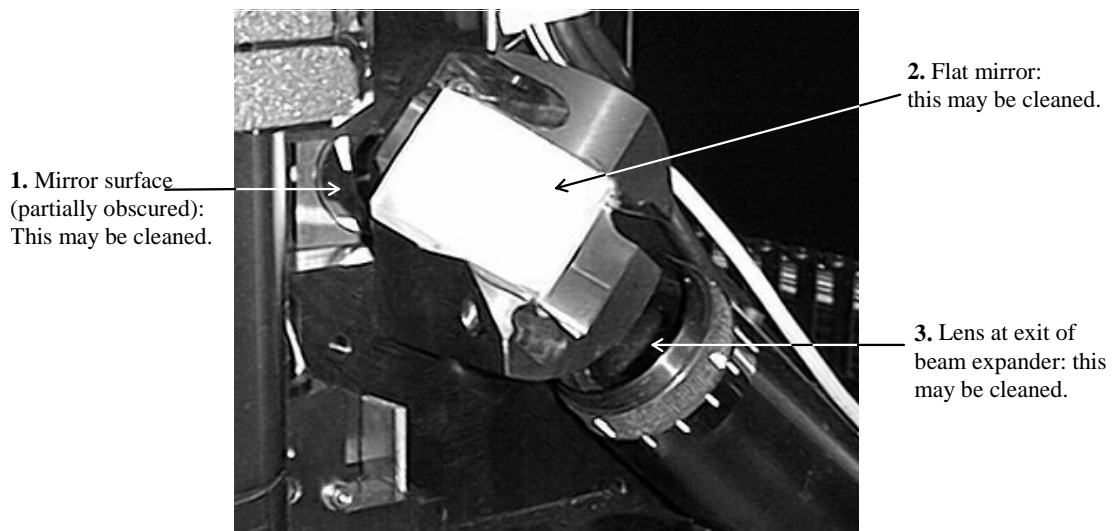
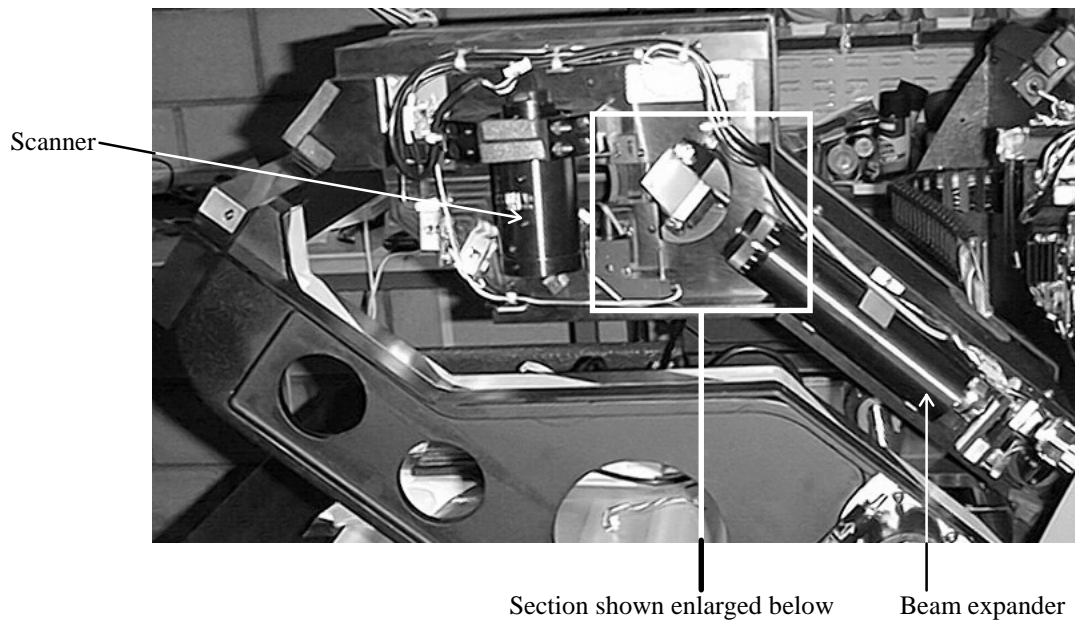
WARNING

**THESE CLEANING FLUIDS SHOULD ONLY BE
USED ON GLASS SURFACES.
THEY REMOVE PAINT.**

C5.3 Identifying the lenses and mirrors

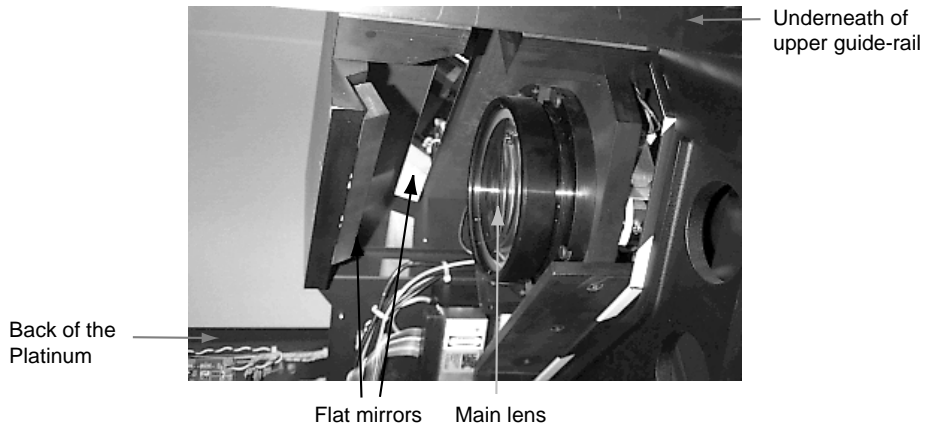
The diagrams below show the Optics Carriage from two positions, and identify the six lenses or mirror surfaces which can be cleaned.

The Optics Carriage



Optics Carriage from underneath

In this image, the Optics carriage is at the right hand end of the Platinum.
The camera is looking upwards, from the front of the machine, to the underside of the Optics Carriage.



C5.4 Procedure

1. Ensure that the Platinum is disconnected at the mains.
2. Remove the Platinum lid and the optics covers, as described in chapter 1. Make sure that the Platinum bed is covered, for example with old discarded plates.
3. You should either wear clean disposable gloves, or you should make sure that your hands are free from grease, using detergent-based soap and water.
4. Use a dry, lint-free cloth to remove any dust from the lens surface.
5. Dip the lint-free cloth (or the cotton bud) into the acetone (or IPA) and wipe gently over the lens surface. The acetone (or IPA) will evaporate quickly.
6. Use a dry part of the cloth to wipe away any excess material.
7. Shine the torch onto the lens surface to check that it is free of dust and smears. If not, repeat the procedure from step 4 onwards.

C6. CHANGING THE MASS DAMPER AND STEPPER MOTOR

C6.1 Introduction

Of the three components of this procedure, the stepper motor is the one most likely to fail. This procedure will therefore primarily describe changing the stepper motor, with options for changing the mass damper and clamping ring.

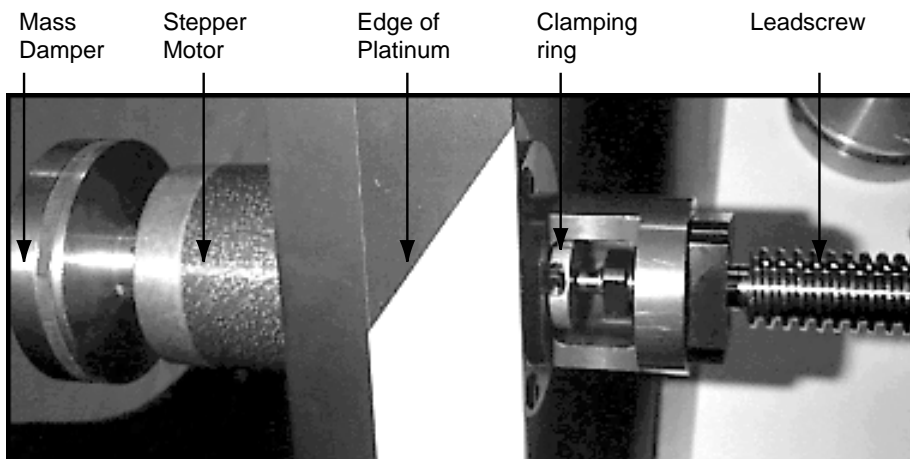
C6.2 Equipment

- Flathead screwdrivers.
- A torque screwdriver.
- Allen keys.

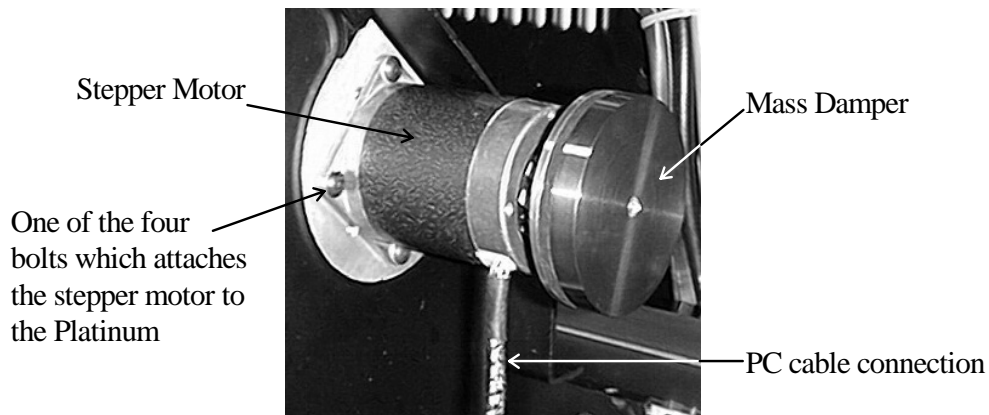
C6.3 Procedure

Motor drive assembly: from mass damper to leadscrew

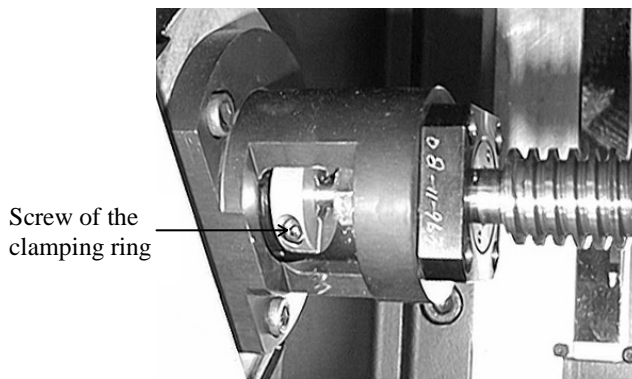
View from back of Platinum looking down



1. Ensure that the Platinum is disconnected at the mains.
2. Remove the lid.
3. In order to remove the stepper motor, you first need to remove the mass damper. The mass damper is attached with two Allen screws. Remove the screws, and store safely.
4. Slide the mass damper off the motor shaft. If you are changing the mass damper and nothing else, jump to step 9.



5. Loosen the screw of the clamping ring, so that the Stepper Motor can be removed in the next step. *This screw is only accessible from the rear of the machine.*



6. The Stepper Motor is connected with four Allen bolts and a PC connector. Detach the PC connection first. Then remove the four bolts, and store safely.
7. *If you are changing the clamping ring:*
 - *Unscrew the clamping ring, and remove it.*
 - *Place the new clamping ring over the four-split bush.*
 - *Tighten the new clamping ring with a torque screwdriver to 1.7Nm.*
8. Attach the new Stepper Motor.
9. Connect the Stepper Motor PC connection.
10. *If you are changing the mass damper, acquire the new mass damper.*

Place the mass damper onto the motor shaft. Make sure that the motor shaft does not cross the gap layer (to check this, either use a depth gauge through the right-hand end of the mass damper, or improvise with something like an Allen key).

11. Using a torque screwdriver, tighten down the screws of the mass damper to 1.7Nm.

C6.4 Implications

You need to test for slippage between the mass damper and the leadscrew/motor coupling.

1. Grip the leadscrew with a dry cloth.

WARNING

NEVER GRIP THE LEADSCREW WITH PLIERS

2. Turn the mass damper.
3. If the mass damper turns independently of the leadscrew, then you need to locate the cause of the slippage.

The symptoms of slippage are light/dark lines on the output in the fast-scan axis, and distortion of the image.

C7. CHANGING THE LEADSCREW ON MACHINES WITH COUPLING

C7.1 Introduction

New Platinum machines (later than January 1998) have been fitted with a coupling system for connecting the optics carriage to the leadscrew. Previous to this, the machine will have the old gimbal system. Check the type of connection before proceeding.

This procedure explains how to remove the leadscrew from the Platinum engine, and to replace it with a new one. If you wish to change the leadscrew nut, the procedure is very similar, since it also requires the leadscrew to be removed first, and then re-attached afterwards.

C7.2 Equipment

In addition to the new leadscrew and/or the new leadscrew nut, you will need to use the following:

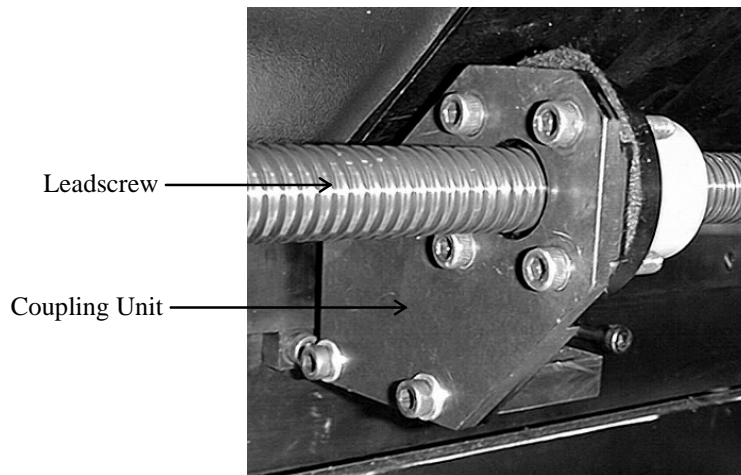
- Torque screwdriver, to obtain a precise torque of 1.7Nm.
- Allen keys.
- Light machine oil (as described in procedure 6, “Lubrication”)
- Engineer’s floppy disk for the verification stage (see procedure 2).

C7.3 Removing the Leadscrew

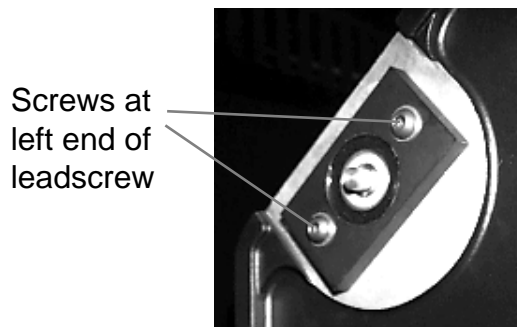
<p style="text-align: center;">WARNING NEVER GRIP THE LEADSCREW WITH PLIERS</p>

1. Remove the Platinum lid and the optics cover.

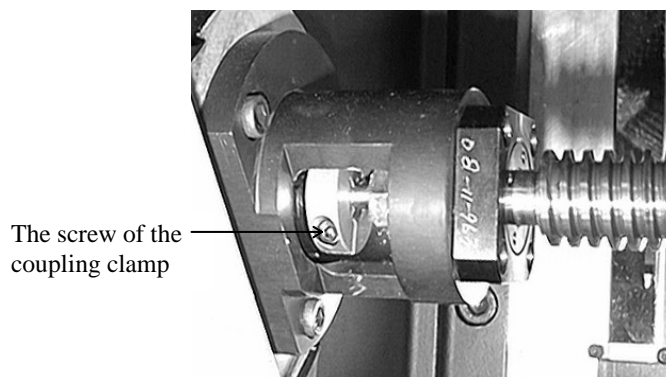
2. Remove the 2 screws at the base of the coupling unit.



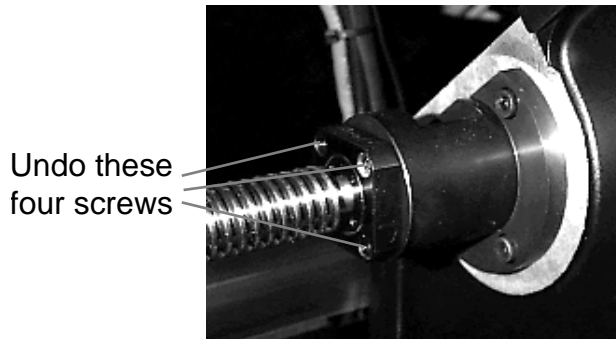
3. Remove the 2 screws from the end-plate on the left-hand side of the machine (which attaches the leadscrew), and remove the end-plate. Put the screws somewhere safely: for example, put them back in to their sockets.



4. Undo the coupling clamp at the right-hand end of the leadscrew. *This is only accessible from the rear of the machine.*



5. Remove the four screws of the right-hand bearing flange, and store safely.



6. Slot the leadscrew through the 22mm clearance hole at the left for 6 to 12 inches, then remove through the large hole on the right of the machine.
7. *If you are changing the leadnut only:*
Remove the leadnut by unscrewing it off the leadscrew, and fit the new leadnut to the leadscrew, by screwing it on.

If you are changing the leadscrew only:

Check whether the new leadscrew has a leadnut with it. If not, remove the leadnut from the old leadscrew, and attach to the new leadscrew. Attach the coupling.

If you are changing both the leadscrew and leadnut:

Make sure that the new leadscrew has the new leadnut attached to it. Attach the coupling.

C7.4 Mounting & aligning the Leadscrew

Overview

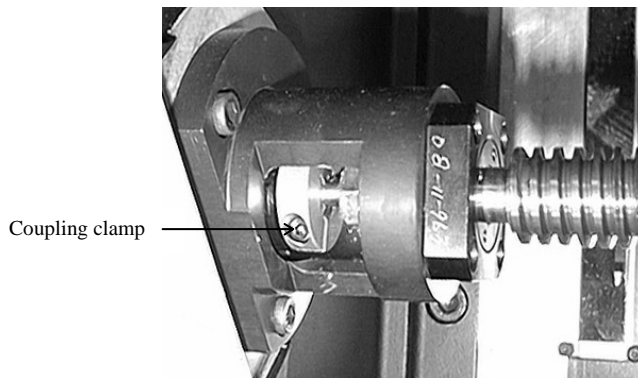
There are three stages to this procedure:

1. Clamping the leadscrew into the right-hand end of the machine.
2. Roughly aligning the left-hand end.
3. Completing the left-hand end alignment.

The Procedure

1. Move the Optics Carriage to the right-hand end of the machine.
2. Remove the end-plate from the new leadscrew.

3. Insert the leadscrew through the large hole at the right of the machine, and then slot the end of the leadscrew through the 22mm clearance hole at the left. Insert into the mount at the right-hand end. Replace the four screws of the right-hand bearing flange, which you removed in step 5 of the previous section.
4. Screw in the coupling clamp, and use a torque screwdriver to torque down to 1.7Nm.



5. Replace the screws at the base of the coupling unit onto the carriage.
6. Align the leadscrew by eye, and then attach the end-plate at the left end which you removed in step 3. Screw in the end-plate, but not too tight (you will tighten it up later after you have made other adjustments).



7. Move the optics carriage to the left hand end of the machine.
8. Tighten up the screws in the left-hand end-plate.

C7.5 Verification

Carriage drive test

To verify that the leadscrew has been aligned correctly, you need to get the carriage to traverse at full speed from end to end. If there is a misalignment, there will be a loud

howling sound where the misalignment has occurred. If this occurs, re-do the necessary part of the alignment procedure.

1. Power up the Platinum, with the engineer's floppy disk inserted in the disk drive.
2. Close the Platinum lid.
3. Select *Carriage* from the first menu.

MS-DOS 6.22 Startup Menu

```
1      Carriage
2      Vacuum
3      Moletest
4      Timescan
5      Expose
6      Filter
7      Shutter
8      Laser
9      TTL
```

Enter choice? 1

4. The Platinum will go through a standard checking procedure.
5. When the checking procedure has finished, you will be offered three choices:

```
Type 1 for Bednut Slow
Type 2 for Bednut Fast
Type 9 for Exit
```

Do not choose the *Bednut Fast* option unless the optics carriage is at the right hand end. Therefore, choose *Bednut Slow* to move the carriage to the right hand end.

6. When the carriage has reached the limit, hit the limit switch (the black and yellow striped bar).
7. Choose *Bednut Fast*.
8. This test runs the carriage through one cycle from right to left and back, slightly faster than the normal fast retrace carriage motion. If the carriage runs without stalling and without abnormal sounds (e.g. shrieks) then all is well and the test is completed. Otherwise, you will need to re-do the leadscrew alignment.
9. If the carriage shows signs of stalling then the drive system needs to be bedded-in. To do this select *Bednut Slow*. This runs the carriage at a much reduced speed

where it will not stall even if the mechanism is tight. The test runs continuously so the machine can be left unattended. The monitor records the number of cycles run.

10. After a suitable interval, terminate the `Bednut Slow` test, by hitting the limit switch towards which the carriage is moving.
11. Re-run `Bednut Fast`. If the carriage runs without stalling then all is well and the test is completed. If not then repeat the `Bednut Slow` treatment.
12. Keep track of the number of cycles run under `Bednut Slow` so that the final total can be recorded on the machine checklist.

Completion

1. Shut down the software and switch off.
2. Remove floppy disk.
3. Complete the appropriate section of the machine checklist.

Output check

Expose a plate with a tint of approximately 50%, and check that there is no banding. If there is banding, you will need to re-do the alignment procedure.

C8. CHANGING THE GUIDE RAIL STRIPS

C8.1 Introduction

In normal usage, the guide-rail strips are unlikely to wear out. However, if they are damaged, they need to be changed.

The guide-rail strips provide a smooth surface for the optics carriage to move left and right. There are three of them: the upper strip is located at the front of the Platinum, and supports the top part of the optics carriage; the lower strip and the back strip are located at the back of the Platinum and support the base of the optics carriage.

Two people are needed to carry out this procedure.

C8.2 Equipment

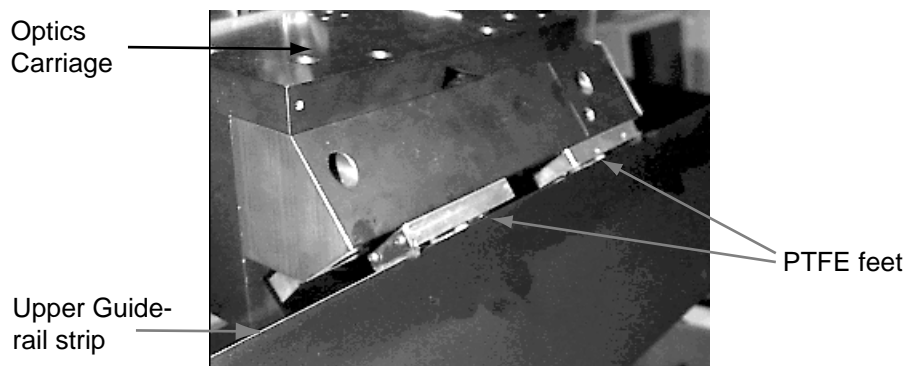
In addition to the new guide-rail strips, you will need the following equipment:

- Screwdrivers
- Support for the optics carriage (you will be taking it off the rails)
- SprayMount (or similar adhesive)

C8.3 Supporting the Optics Carriage

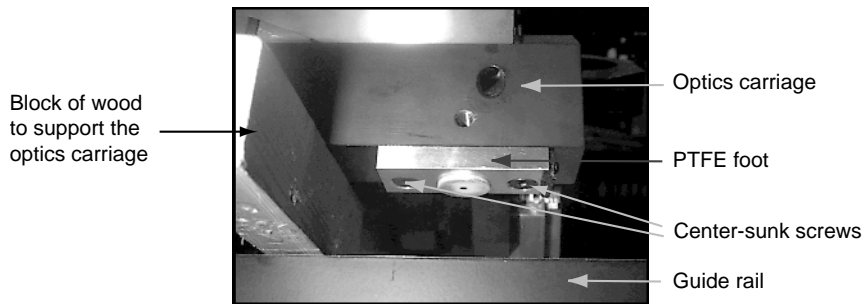
When you change the guide-rail strips, you must ensure that the optics carriage is supported adequately. Do not attempt to change the upper guide-rail strip at the same time as either the lower or back ones.

If you are changing the upper guide-rail strip:



View at front of Platinum,
of Optics Carriage on the Upper Guide Rail

1. You need to lift the optics carriage off the upper guide-rail. Remove the leadscrew and store safely, as described in section 7, “Changing the Leadscrew”.
2. The optics carriage must be rested off the guide-rail strip. A block of wood, located between the optics carriage and the guide-rail, is adequate.



If you are changing the lower and/or back guide-rail strips:

You need to lift the optics carriage off the lower guide-rail and support it.

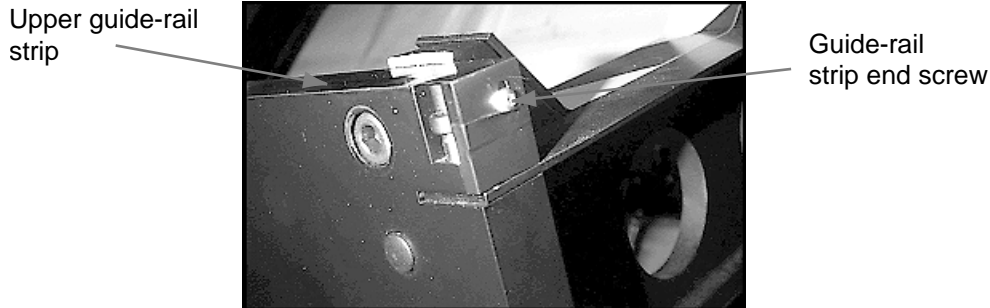
1. Remove the leadscrew, referring to section 7, “Changing the Leadscrew”.
2. You will need to improvise a method for supporting the optics carriage. A 20-30 litre waste bottle, together with additional blocks of wood for added height, is adequate for the task.

WARNING!

**THE GUIDE-RAIL STRIPS ARE VERY SHARP.
THEY MUST BE HANDLED WITH EXTREME
CARE.**

C8.4 Procedure

1. Remove the screws at both ends of the strip.



Front right corner of Platinum upper guide-rail

2. Pull off the strip, making sure you do not damage either yourself or anyone else nearby with the strip.
3. Clean off the adhesive remaining on Platinum, using a light-duty solvent. The surface of Platinum needs to be very clean, and free of marks.
4. Ensure that the new strip is also clean, free of grease and other marks.
5. Use an adhesive on the underside of the new strip, using an adhesive like SprayMount.

WARNING!

**KEEP THE SPRAYMOUNT WELL AWAY FROM
THE PLATINUM OPTICS.
DO NOT SPRAY THE STRIP IN THE SAME ROOM
AS THE PLATINUM OR ANY OTHER SENSITIVE
OPTICS**

6. Screw the right-hand end of the strip hard into the right-hand end of the Platinum. The second person needs to keep the remainder of the strip well away from the guide-rail.
7. Proceed slowly along the rail, pushing the strip hard into the rail, and keeping it flush with the edges. If the strip is slightly wider than the guide-rail, it should only protrude over the inner edge, and not the outer edge (for safety reasons).

DO NOT PULL THE GUIDE-RAIL STRIP VIOLENTLY, OTHERWISE IT WILL GET A KINK AND WILL NEED TO BE SCRAPPED.

8. At the end, put the last screw back in.
9. Add a small piece of black insulator tape over each end of the strip.
10. Remove the mechanism supporting the optics carriage, so that the optics carriage can now rest back on the guide-rail.
11. Replace the leadscrew and leadnut. If necessary, refer to the chapter on replacing the leadscrew.

C8.5 Implications

If there is grease or dirt trapped under the rail, the focus will be affected, causing areas of density change in a flat tint, which remain from plate to plate.

You should therefore output a plate with a flat 50% tint on it to check this.

C9. REPLACING THE PROCESSOR UNIT BOARDS

C9.1 Introduction

This procedure describes the replacement of the processor boards, together with the calibration and verification process for the pixel clock board.

C9.2 Equipment

- Screwdrivers for opening the PC unit and replacing the board.
- ESD grounding wrist-strap.
- 2 open-ended spanners
- 1 meter steel rule

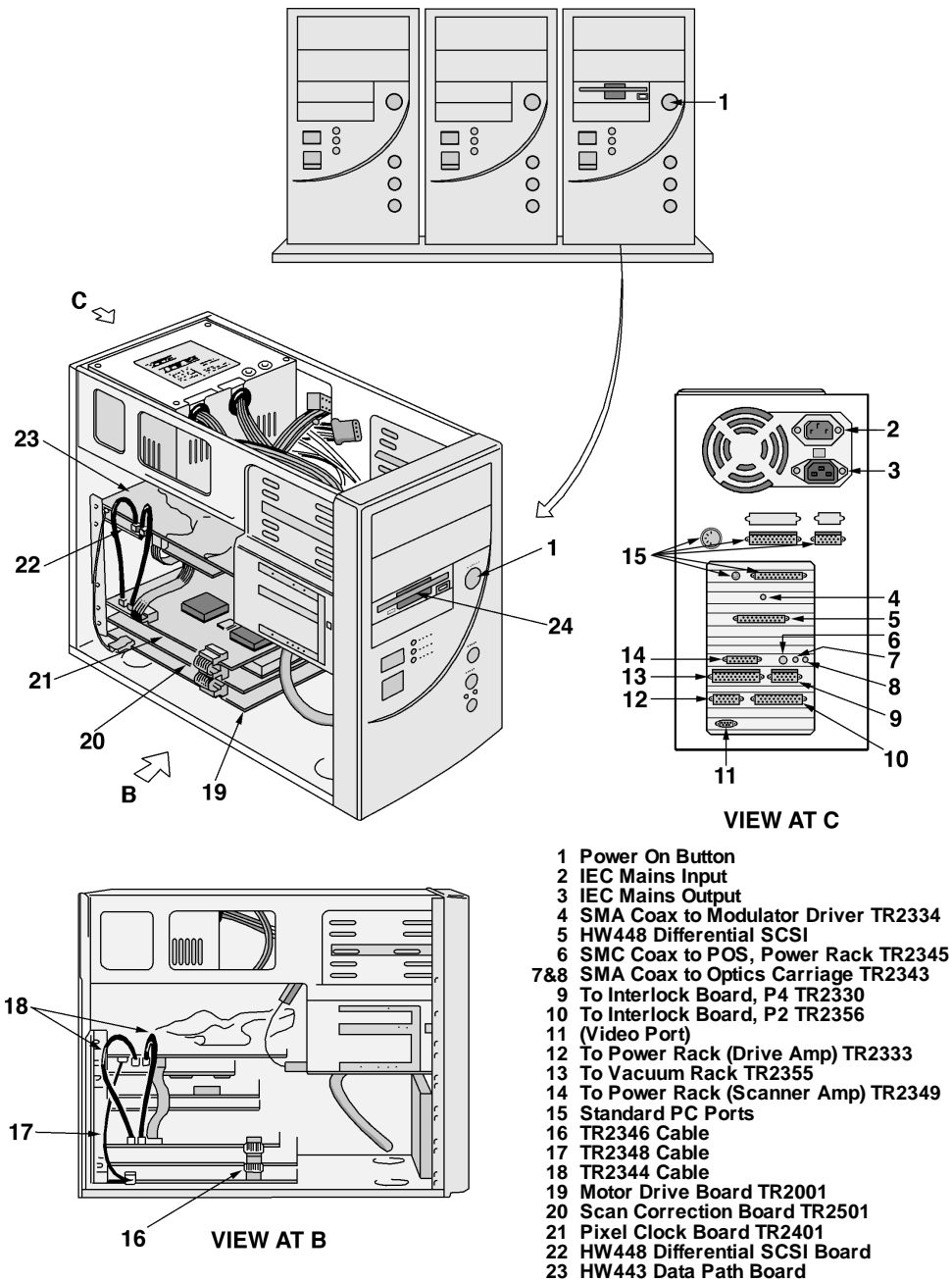
C9.3 Anti-static precautions

WARNING

Before you begin the installation process, you must discharge any static electricity from yourself and the PC:

- Once you have opened the case, tap your finger on the metal frame of the PC chassis.
- We also recommend that you leave the PC unit plugged in but switched off at the mains. This ensures that the it is grounded without being connected to a power source.
- Wear an ESD grounding wrist strap. The ESD wrist strap is supplied with its own instructions for wear and use.
- Do not remove the antistatic wrappers from the board until you are grounded and about to start installation.
- Always return the board to its antistatic bag if you have to remove it from the PC.
- By following these procedures you will protect both yourself and the board from static electricity.

C9.4 Identifying the boards



C9.5 Removing the old board

1. Switch off the power.
2. Remove the back panel of the Platinum.
3. Disconnect all the cables from the back of the Processor Rack.
4. Remove the Processor Rack from the shelf on the Platinum and place onto a convenient working surface.
5. Remove the cover of the Processor Rack by removing the six screws at the back.
6. Remove the jumper cables and co-ax cables from the board.
7. Remove the retaining screw which attaches the board to the rack.
8. Slide out the board from the machine.

C9.6 Inserting the new board

1. *If you are changing the Pixel Clock Board, check the link and the switch setting positions using the table below.*

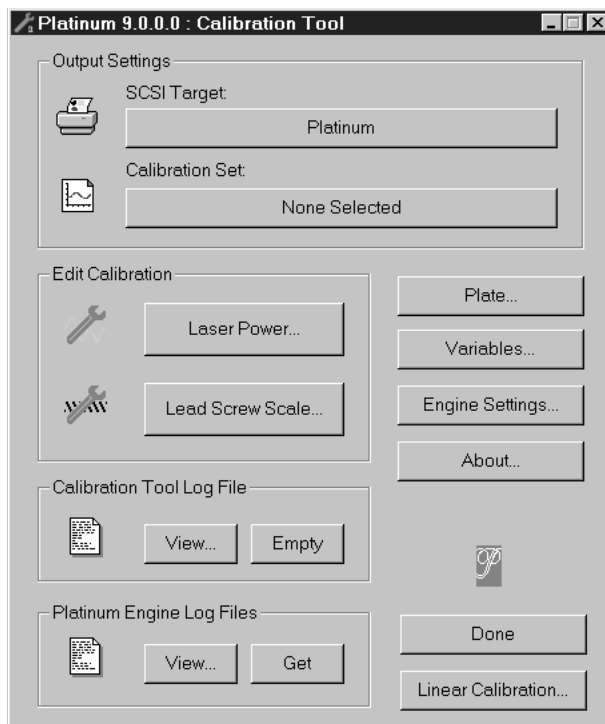
SW1		SW2	
Pins 1-16	ON	Pins 1-16	OFF
Pins 2-15	OFF	Pins 2-15	OFF
Pins 3-14	ON	Pins 3-14	OFF
Pins 4-13	ON	Pins 4-13	OFF
Pins 5-12	OFF	Pins 5-12	OFF
Pins 6-11	ON	Pins 6-11	ON
Pins 7-10	ON	Pins 7-10	OFF
Pins 8-9	OFF	Pins 8-9	OFF

2. Slot the board into place, and screw in the retaining screw.
3. Attach the jumper cables and co-ax cables.
4. Replace the cover of the Processor Rack, and return the Processor Rack to the shelf on the Platinum.
5. Re-connect all the cables at the back of the Processor Rack, taking care that the cable designation matches the socket designation.

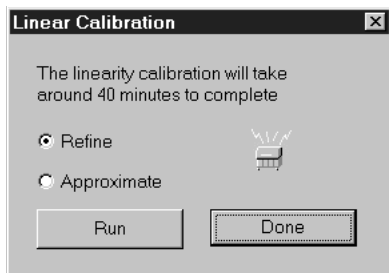
C9.7 Pixel Clock Calibration

If you have installed a new pixel clock board, you must perform the pixel clock calibration.

1. Power up the Platinum with the normal software and the front end system connected and operating. This procedure requires a stable laser: it takes about 8-10 minutes for the laser to become stable after being powered up.
2. Login as Engineer. The calibration software should automatically launch during the login procedure. If it does not, you will need to locate the current version of `caltool.exe`.



3. Click on the **Linear Calibration** button.
4. Click the radio button labelled **Approximate**, and then click on **Run**.
5. Once this has completed, click the radio button labelled **Refine**, and then click on **Run**.



6. The process can take about 40 minutes and does not need operator intervention. Versions of the software later than 8.3.3 require that the **Refine** procedure is run a minimum of 4 times.

It is vital that the full calibration stages of **Approximate** and **Refine** are run to ensure accurate linearity. These require two full runs of the mole from front to rear and back, in addition to rope finding cycles.

Verification

For confidence that the linearity has been achieved, we recommend that, at a later stage in the testing, you:

- Take a film with a suitable front-to-back scale
- Overlay the front half on the rear half
- Inspect the coincidence of the tick marks under a microscope.

Alternatively,

- Output a density calibration film (e.g. laser50_150_2540.TIF) and use the ruler to measure.

C9.8 Completion

Shut down the software and switch off the machine if it is not needed in this configuration for subsequent tests.

C10. CHANGING THE MOLE AND THE GRATICULE

C10.1 Introduction

This procedure describes how to replace both the mole assembly and the graticule.

C10.2 Equipment

- Allen keys
- Screwdrivers
- Torch
- Eye probe
- Monitor and keyboard
- Engineer's floppy disk
- Oil (3-in-1) for the mole leadscrew (optional)
- IPA cleaning fluid (optional)

C10.3 Removing the old graticule

The graticule is fragile, and must be handled carefully.

1. Remove the black guard which protects the graticule from plate damage. This can be done by removing the 3 Allen screws.
2. Unscrew the clamps fully at the front and the back of the graticule, and store safely.
Use the torch to see at the back of the machine.
3. Slightly move the graticule out from the slot, grab the projected front end of the graticule, and lift out, USING EXTREME CARE.

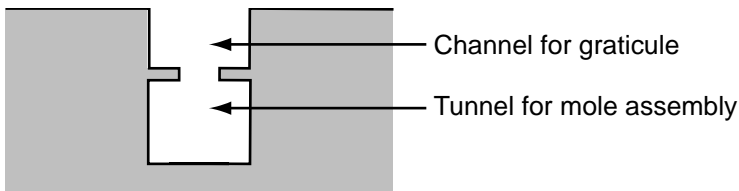
C10.4 Removing the old mole assembly

1. If the graticule is not already removed, remove it, as described in the previous section.
2. Remove the screw at the front of the mole assembly tunnel.
3. Gently remove the mole assembly from the tunnel, pulling forward out of the tunnel.

4. Disconnect the electrical cable of the mole assembly.

C10.5 Replacing the new mole assembly

1. Connect the electrical cable to the socket on the new mole assembly. There is only one socket, and there is only one way to attach the cable.
2. Ensure that the cable runs flat along the mole assembly, and slot the mole assembly gently into the mole assembly tunnel until it is fully home. (The mole assembly will have been tested beforehand, so that the mole should fit in the tunnel with some clearance).



Cross-section of mole tunnel

3. Replace the screw at the front of the mole assembly tunnel.

C10.6 Verification

The purpose of the Verification procedure is to ensure that it is correctly installed, and that the mole is bedded in.

Equipment

Take an eye probe (TR791) and plug it into the spare power socket on the interlock control board.

Preparation

1. Power up the Platinum with the engineer's floppy disc.

2. Select `Moletest` from the first menu.

MS-DOS 6.22 Startup Menu

```
1 Carriage
2 Vacuum
3 Moletest
4 Timescan
5 Expose
6 Filter
7 Shutter
8 Laser
9 TTL
```

Enter choice? 3

3. You will be presented with a set of options for the Mole test:

Eye test (e), or run test (r), or e(x)it?

Eye Test

4. From the Mole test command line, select the `Eye Test`. The Platinum monitor now shows a value scrolling up the left hand side of the screen. This is the light measurement from the mole's eyes and is in the range 0 to 255, for dark to full brightness.
5. In normal room lighting conditions the value should be zero or about zero. If it is not zero, hold an opaque surface over the mole head at a distance of about 10mm (your hand will do) and check that the reading is zero.
6. Next, take the eye probe and carefully illuminate one of the three eyes. Maintain a spacing of a few millimetres to avoid any risk of damaging the eye. Also ensure that no light spreads from the probe to either of the other eyes.
7. The monitor will now show a reading which is the eye's sensitivity to the light level from the probe. The value should be in the range 100 to 200.
8. Note the value in the space provided in the checklist.
9. Repeat the test for the other eyes. The absolute value is not critical since the test environment and procedure are crude. However a fairly good balance (within 20) should be obtained across all three eyes if the system is working correctly.
10. Terminate the test by typing <Return> on the keyboard.

Run Test

11. Select the `Run Test` from the Mole test command line.

The Run Test menu provides options to drive the mole to the front, to the rear, and continuously backwards and forwards.

Move mole to (f)ront or (b)ack or (c)ontinuous or e(x)it?

Any operation can be terminated by hitting the <Return> key.

12. Using the first two command options and a stop watch, measure the time taken for the mole to travel from the front stop to the rear stop and from the rear stop to the front stop.
13. Note the times in the checklist. If the time is less than 45 seconds then this test can be terminated immediately.
14. If the time is greater than 45 seconds then it is necessary to bed-in the mole drive system. To do this select the `Continuous Running` test. This drives the mole forwards for 60 seconds and backwards for 60 seconds; then repeats indefinitely. The monitor records the number of forward and backward cycles.

The machine can be left with this test running.
15. Periodically return to the machine to monitor progress and time the forward and reverse traversing of the mole. When the times are below 45 seconds, the test can be terminated by hitting the <Return> key on the keyboard.
16. Note on the checklist the number of cycles run and the final timings.
17. Shut down the software and switch off.
18. Remove the preparation rig from the machine. The graticule can now be fitted.

Lubricating the Mole leadscrew

While the mole is running in continuous mode, you could add two or three drops of 3-in-1 oil to the mole leadscrew. This will be spread along the leadscrew by the mole, as it runs forwards and backwards.

C10.7 Replacing the graticule

The graticule is fragile, and must be handled carefully.

1. Ensure that the graticule is free from dust and grease.

WARNING!

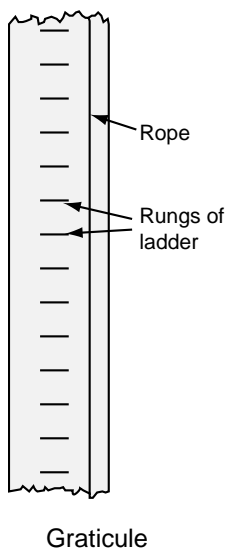
DO NOT USE ACETONE ON THE GRATICULE!

2. If you use a cleaning substance, do not use acetone. Use only IPA.

WARNING!

**YOU MUST ENSURE THAT THE GRATICULE IS
INSERTED WITH THE CORRECT
ORIENTATION!!**

3. Check that the graticule is oriented correctly.
 - It has two sides: make sure that the mirror surface is upward (and the glass surface downward).
 - The mirrored surface has a thin line scored from front to back, and a series of bars scored horizontally. Make sure that the line along the graticule is on the right of the horizontal bars.
4. Slot the graticule onto the channel above the mole assembly.



5. When the graticule is nearly inserted fully into the tunnel, use a flat surface to push the assembly so that it is flush with the end of the tunnel.
6. The graticule must be placed hard up against the left edge. To ensure this, insert a folded piece of shim between the right edge of the graticule and the right edge of the tunnel, so that the graticule is pushed over to the left.
7. Move the clamp at the back over the graticule, and screw into place.
8. Attach the front clamp over the front end of the graticule.
9. Replace the guard.

C11. CHANGING THE FILTER WHEEL

C11.1 Introduction

The filter wheel can be changed via a straightforward procedure. If an individual filter is defective, it will be best to change the whole filter wheel.

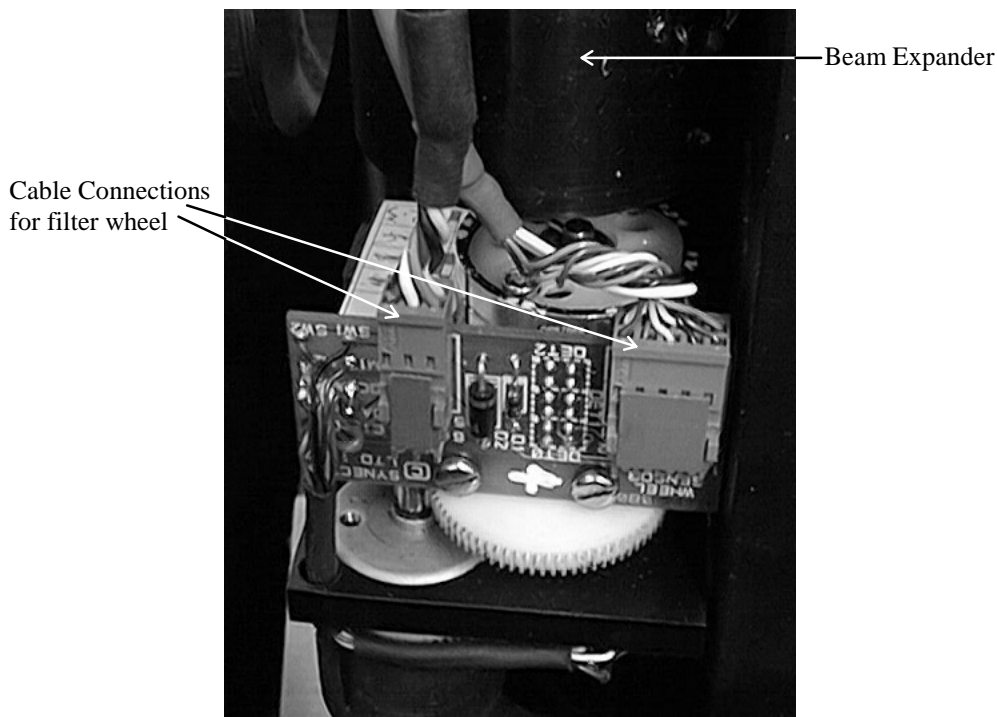
C11.2 Equipment

In addition to the new filter wheel, you will need:

- Allen key
- Flat-head screwdriver
- The Engineer's floppy disk (TTL disk) for the verification.

C11.3 Procedure

1. Remove the lid and the optics covers (see procedure 1).
2. The filter wheel is attached with two screws on the underside of the optics carriage, and is connected with two small cables.



3. Disconnect the cables.

4. Unscrew the Allen screws on the underside of the Optics carriage, and save the screws.
5. Remove the old filter wheel.
6. Insert the new filter wheel, fitting tight and square into the angle of the carriage.
7. Screw in the new filter wheel, and re-connect the cables.

C11.4 Verification

You should verify that the filter wheel operates correctly by running the filter wheel test, using the Engineer's Startup Disk (see procedure 2).

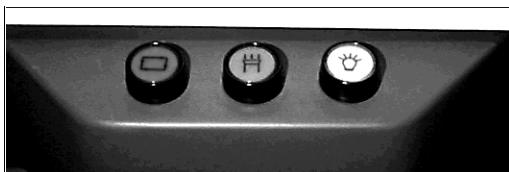
1. Choose `Filter` from the first menu:

MS-DOS 6.22 Startup Menu

```
1 Carriage
2 Vacuum
3 Moletest
4 Timescan
5 Expose
6 Filter
7 Shutter
8 Laser
9 TTL
```

Enter choice? **6**

2. The Platinum will now cycle through the filter wheel positions, displaying the cycle number and the number of retries.
3. After a sufficient number of cycles, hit all three buttons on the Platinum to quit.



C11.5 Implications

The machine may need to be re-calibrated.

C12. THE OPTICAL TEST SET

C12.1 Introduction

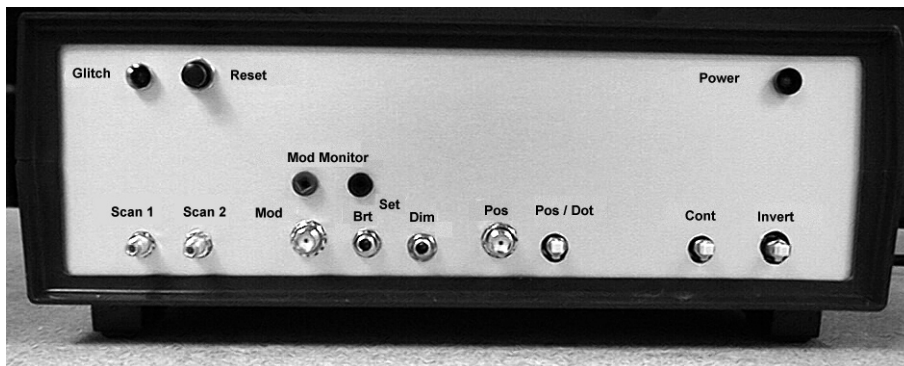
The Optical Test Set box is required for use with the Beam Power test and for the Optical diagnostics.

C12.2 Equipment

- Optical Test Set Box
- Differential Voltmeter

C12.3 Installing the Optical Test Set Box

You need to set up a optical test set box to drive the modulator via the modulator drive cable, TR2334. To do this, you will connect the box using cables that are currently attached to the back of the processor unit. Therefore, place the test box on the shelf close to the PC.



1. Remove scanner cable TR2335.
2. Detach the cable TR2334 mod. drive from the back of the PC, and connect it to the socket on the test box marked **Mod**.
3. Detach the cable TR2345 P.O.S. from the back of the PC, and connect it to the socket on the test box marked **Pos**.
4. Detach the cable TR2343 Scan 1 from the back of the PC, and connect it to the socket on the test box marked **Scan 1**.
5. Detach the cable TR2343 Scan 2 from the back of the PC, and connect it to the socket on the test box marked **Scan 2**.

6. Attach a power supply cable to the socket at the back of the machine, and connect to a power supply.

WARNING:

You must ensure that the scanner cable (TR2335) is disconnected from the power rack, so that the galvo will be stopped.

C12.4 Controlling the laser beam

For the procedures in this manual, the beam can be controlled using three of the buttons.

Cont	Provides a continuous beam.
Pos / Dot	The beam appears as a bright dot: use this for the beam power test and with the SpotViewer in the Optical Diagnostics.
Invert	Use this to switch between the on and the off beams.

Measuring the Voltage

Use a Differential VoltMeter across the two points marked **Mod Monitor**. The voltage with the beam on should be 1V, and with the beam off should be 0V.

C13. BEAM POWER TEST

C13.1 Introduction

This procedure tests the power of the laser beam.

WARNING

THE MACHINE WILL HAVE MAINS POWER
APPLIED AND THE LASERS WILL BE OPERAT-
ING. THE APPROPRIATE SAFETY PROCEDURES
MUST BE OBSERVED.

C13.2 Equipment

- Optical Test Set Box
- Engineer's floppy disc
- Differential VoltMeter
- Laser dongle
- Laser power meter
- Lid bipass switch

C13.3 Procedure

1. Install the Optical Test Set Box and laser dongle, as described in procedure 12.
2. Insert lid bipass switch.
3. Disconnect the scanner by removing cable TR2335 from the Power Rack.
4. Connect cable TR2334 to the Optical Test Set Box.
5. Power up the Platinum with the engineer's floppy disc.
6. Wait for the laser output power to stabilize.

WARNING

THE FOLLOWING OPERATIONS INVOLVE THE
FULL, UNSCANNED BEAM FROM THE 50mW
LASER.

THIS BEAM IS DANGEROUS AND SUITABLE
SAFETY GOGGLES MUST BE WORN.
IN ADDITION, SINCE THE BEAM MIGHT BE
INADVERTENTLY DEFLECTED DURING
ADJUSTMENT OF THE TEST EQUIPMENT THE
OPERATOR MUST TAKE APPROPRIATE PRE-
CAUTIONS TO SAFEGUARD OTHERS IN THE
VICINITY.

7. You need to set the filter wheel to the open position (currently position 7).
- In the current version of the Engineer's startup disk, you need to use the TTL prompt in order to move the filter wheel to the Open position.

MS-DOS 6.22 Startup Menu

1. Carriage
2. Vacuum
3. Moletest
4. Timescan
5. Expose
6. Filter
7. Shutter
8. Laser
- 9. TTL**

Enter choice? **9**

- Then type the following commands at the TTL prompt:

```
LC_Shutter = 1
SC_CalibrationDetector = 0xc300
LaserOn = 1 << 0
MC_Command |= LaserOn
```

8. The full power beam from the main laser is now under the control of the **Invert** switch on the test box. Since the scanner is unplugged and therefore stationary, the beam is deflected to a single point in the centre of the scan.

9. Position the laser power meter sensor in the beam on the platen. The portable pen power meter currently used by HighWater service engineers is shown below. *Refer to the operating instructions that came with the meter for full details of usage.*



- YOU MUST USE THE FILTER WHEN YOU MEASURE THE BEAM AT FULL POWER.
 - You must set the wavelength to 532nm
10. If necessary, you can move the carriage manually to a convenient position by turning the mass damper disc, located on the right hand side of the Platinum, towards the back.
 11. Using the Optical test set, ensure that the modulator is not inverted, and measure the beam power. The on-beam should be $> 20\text{mW}$.
 12. If you need to measure the extinction (contrast) ratio:
 - On the test set box, switch the invert switch on. This will give the off-beam power.
 - Measure the power of the off-beam. It should be $< 30\mu\text{W}$.
 - The extinction (contrast) ratio is the ratio of the on-beam power to the off-beam power. It should be above 500:1.
 13. Record these results in the engine log. If the on-beam and off-beam measurements are satisfactory, go to section 13.5, "Completion".

C13.4 Adjusting the Beam Power

If the maximum beam power is too low, you should check the setting of the Modulator Driver.

1. *The Modulator Driver is located at the left hand end of the electrical rack.*

Adjust the modulator driver trim pot to find the maximum power reading: (The manufacturer's name should be marked on the modulator driver).

- On Isomet modulators, use a terminal screw driver or trim tool through the hole marked PWR ADJ.
- On Isle Optics modulators, use a terminal screw driver or trim tool, through

the hole marked LEVEL.

- On A&A Systems modulators, use a terminal screw driver or trim tool, through the hole marked POWER ADJ.
2. If the modulator is an Isle Optics, back off the trimmer, until the power is at 95% of maximum. *You do not need to do this for modulators manufactured by either Isomet or A&A Systems.*
 3. Once you have made this setting, record in the checklist the power with the modulator on and off.

C13.5 Completion

1. Shut down the software and switch off the machine.
2. Remove the engineer's disk.
3. Remove the Optical Test Set Box from the back of the machine, and re-connect the cables.
4. Re-attach the Scanner Cable TR2335 to the Power Rack.

C13.6 Implications

If you made an adjustment to the setting of the modulator driver, you need to re-calibrate the Platinum output, using the method described in the Platinum Installation and Maintenance Manual

C14. OPTICAL DIAGNOSTICS

C14.1 Introduction

If there are problems with Platinum's optics, it is essential to invest time in diagnosing the problem, so as to minimise machine down-time later. The aim of this chapter is to fill in the diagnostics form at the end, which should then be faxed to HighWater. This will enable Platinum service engineers to provide further guidance on the problem.

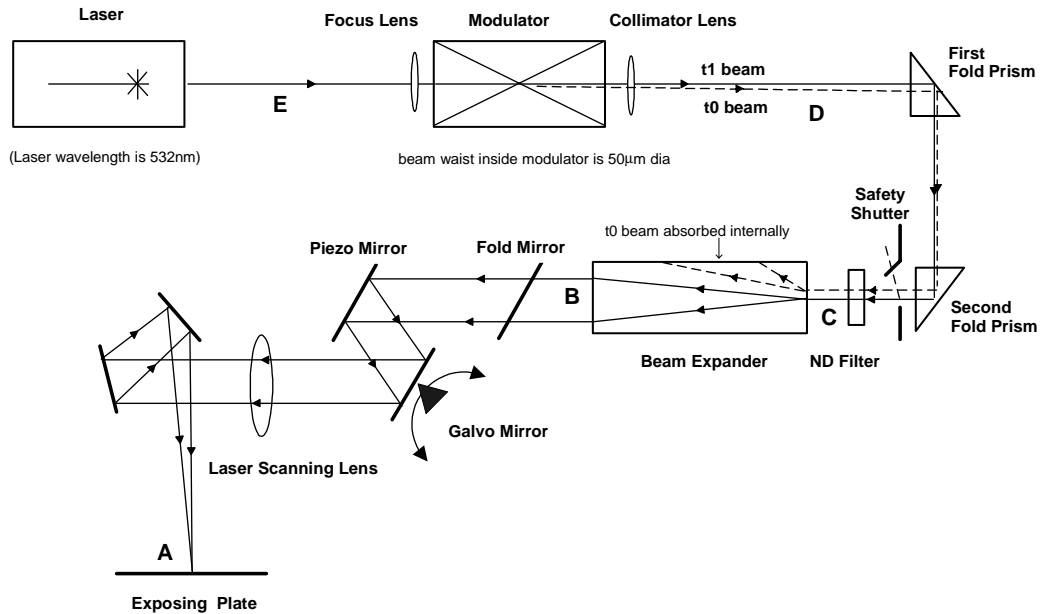
C14.2 Equipment

- Optical Test Set Box
- Engineer's floppy disc
- Keyboard and monitor
- Differential VoltMeter
- Laser dongle
- Laser power meter
- Lid bypass switch
- Spot Viewer

C14.3 The Optics Path

The optical path is shown below, with the five test points, marked **A** to **E**. The table on the next page summarises the measurements expected at these points.

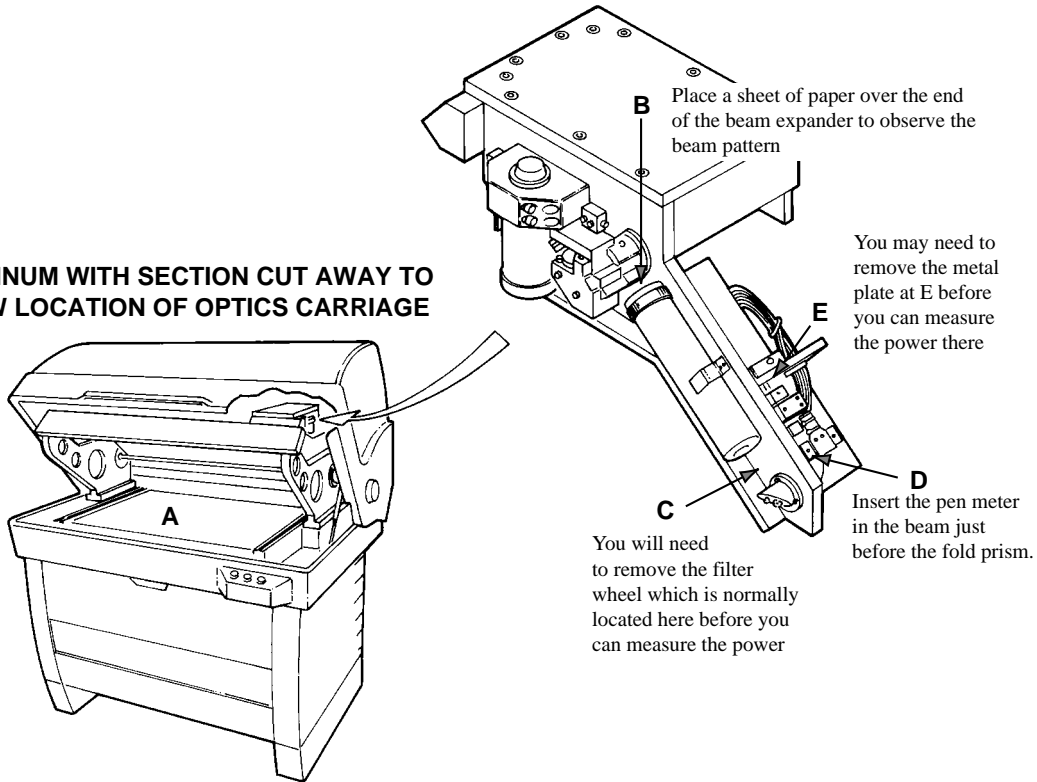
Platinum Expose Beam Optical Path (simplified)



These five test points are readily accessible on the Platinum, once the covers of the Optics Carriage have been removed.

OPTICS CARRIAGE WITH THE COVERS REMOVED

PLATINUM WITH SECTION CUT AWAY TO SHOW LOCATION OF OPTICS CARRIAGE



The Optical Path Test Points

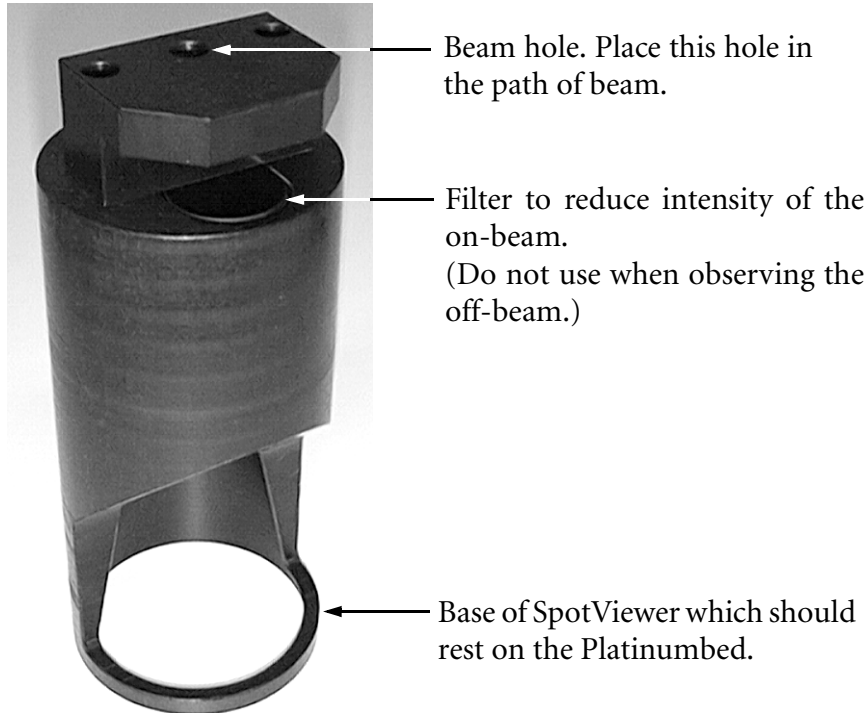
The expected results from the five test points are summarised below. For the power measurements, refer to procedure 13 for details.

	Beam diameter	Power	Comments
A	25µm	20mW	4% power loss at each of the mirror surfaces. Use the Spot Viewer to examine the beam here.
B	20mm	-----	Good position for paper test of the broad beam. If the beam is defective beam here, the problem is earlier. If the beam is OK here, but the output is defective, the problem is later.
C	2 beams approx 0.6mm	45mW	Minimal power loss through fold prisms. Remove filter wheel to measure power.
D	2 beams at 0.33mm	45mW	Approx 5mW lost through modulator and lenses.
E	0.33mm	50mW	Nominal power.

The beam power is not measurable at position B (it is too broad for the power meter).

C14.4 Using the Spot Viewer

The Spot Viewer has been designed to observe the beam pattern at the platen (marked position A on the diagrams in the previous section. .



To observe the on-beam

1. Set up the Optical Test Set, as described in procedure 12.
2. Reboot the Platinum using the Engineer's Floppy Disk (described in procedure 2).

3. From the menu, choose the Laser Option, which is option 8:

MS-DOS 6.22 Startup Menu

- 1 Carriage
- 2 Vacuum
- 3 Moletest
- 4 Timescan
- 5 Expose
- 6 Filter
- 7 Shutter
- 8 Laser**
- 9 TTL

Enter choice? **8**

4. The laser should be left for 10 minutes or so, to ensure that it is stable.
5. Slide the filter into place, to reduce the intensity of the beam that will be observed.
6. Place the SpotViewer onto the Platen, and observe the beam pattern.

To observe the off-beam

7. On the Optical Test Set, hit the **Invert** button.
8. Move the filter on the SpotViewer out of the beam path.
9. Observe the beam pattern.

To: HighWater Designs Ltd. Fax: +44-1242-251600

ATTN: Platinum Service Engineer

Your contact phone number: _____

Your fax number: _____ E-mail address: _____

Information about the machine

Customer's name and address	Engine's serial number

Beam Power - procedure 13

What is the power measured on the Platinum bed with the beam ON ?	<i>Expected power > 20mW</i>	
What is the power measured on the Platinum bed with the beam OFF ?	<i>Expected power < 30μW</i>	
What equipment did you use?		
Insert a pen power meter at position C . What is the power there?	<i>Expected power > 45mW</i>	
Insert a pen power meter at position D . What is the power there?	<i>Expected power > 45mW</i>	
Insert a pen power meter at position E . What is the power there?	<i>Expected power > 50mW</i>	

Voltage on the Optical Test Set - procedure 12

What is the voltage measured across the Mod. Monitor points on the Optical Test Set?	<i>Expected voltage = 1V</i>	
--	------------------------------	--

Beam pattern - section 14.4

What are the on-beam and off-beam patterns? Sketch them here.

Name of service engineer: _____ Today's date: _____

C15. FINE FOCUS SET-UP

C15.1 Introduction

For a Platinum engine in the field, only fine focussing adjustments should be necessary.

You should be aware that the best focus varies according to the thickness of the medium. Film is approximately 0.1mm thick, whereas metal plates tend to be either 0.15mm or 0.3mm thick. You should therefore focus using the plate that will be used most often.

WARNING

THE MACHINE WILL HAVE MAINS POWER
APPLIED AND THE LASERS WILL BE OPERAT-
ING. THE APPROPRIATE SAFETY PROCEDURES
MUST BE OBSERVED.

C15.2 Equipment

- You will be exposing one or more plates in the course of this procedure.
- A magnifier (approximately x100) to examine the exposed plates.
- Partial temporary right-hand cover

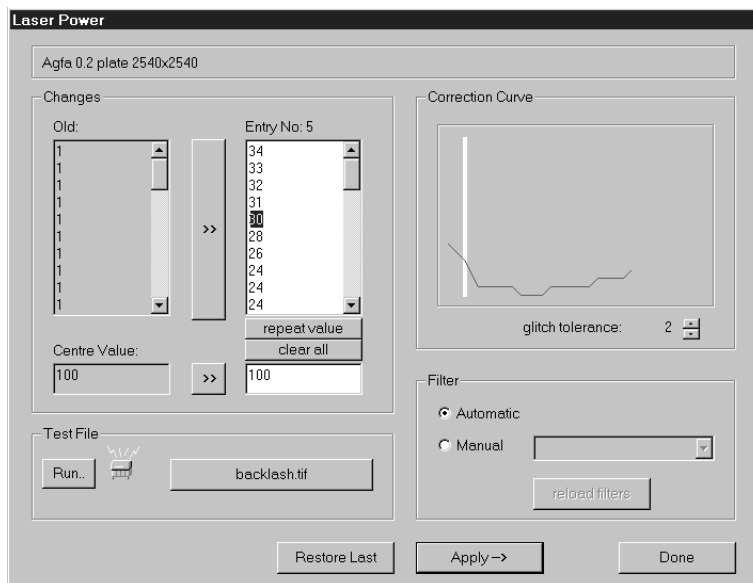
C15.3 Procedure

You should only perform this procedure when you have established the optimum power.

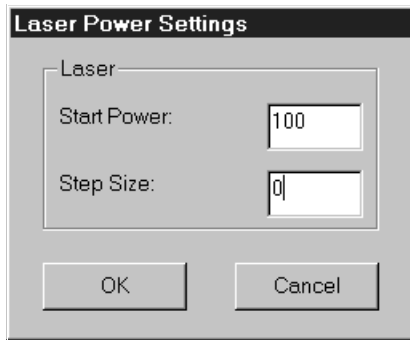
In order to ascertain the best focus, you will output the standard test image a number of times, with each output being performed with a different focus setting.

The fine-focussing adjustment is done with the focus ring on the end of the beam expander. The ring is marked in increments of $1/16^{\text{th}}$. You should test the focus in increments of $1/32^{\text{nd}}$.

1. Remove the top cover and the right hand carriage cover from the machine.
2. Fit the partial temporary right hand cover (which provides access to the focus adjustment whilst masking off most of the laser reflections towards the platen).
3. Power up the Platinum.
4. Override the cover safety interlock to ensure a successful load.
5. On the focus ring of the beam expander, you should mark the position of the current focus. Decide how many test strips can be fitted onto the plate/film, and move the focus ring anticlockwise, so that the original focus position will be the middle test strip on the plate.
6. Login to the workstation as engineer. The Platinum calibration software will launch automatically.
7. Click the **Laser Power** button.



8. In the **Test File** box, choose the appropriate test file, e.g. `laser50-150-2540.tif`, and click on **Run....**
9. Choose a **Start Power** of 100, and **Step Size** of 0.



10. When the Platinum has finished outputting the first test strip, it will bleep for about ten seconds. While it is bleeping, turn the focus ring clockwise by $1/32^{\text{nd}}$ of a turn.
11. After the Platinum has finished bleeping, the second test strip will be output.
12. Repeat this procedure until all the test strips have been output.
13. Process the plate/film.
14. Carefully label the strips as follows: the last strip, which represents the current focus position, should be labelled 0; the others should be labelled 1, 2, 3....

C15.4 Assessing the focus

Determining the best focus is a subjective process. The following comments provide a guide. Refer to the image on the next page to identify the key features of the test image

- When the **50% tint** is viewed at high magnification, it will appear as a chequer-board of square black-and-white dots. When the laser is in focus, the edges should be sharp, and the corners of the squares should be touching.
- Check that the adjoining **black and white lines** have the same width. When the laser is out of focus, the widths will be unequal.
- Check the **radial spokes**. When the laser is in focus, the spokes should be clear and distinct towards the centre. However, the spokes rapidly fill in when the laser is out of focus.

Bear in mind that the ideal focus at the front and back of the plate may be slightly different to the ideal focus at the centre. This takes two forms:

- There may be a slant across the focus columns,
- Or there may be a slight curve across the focus columns.

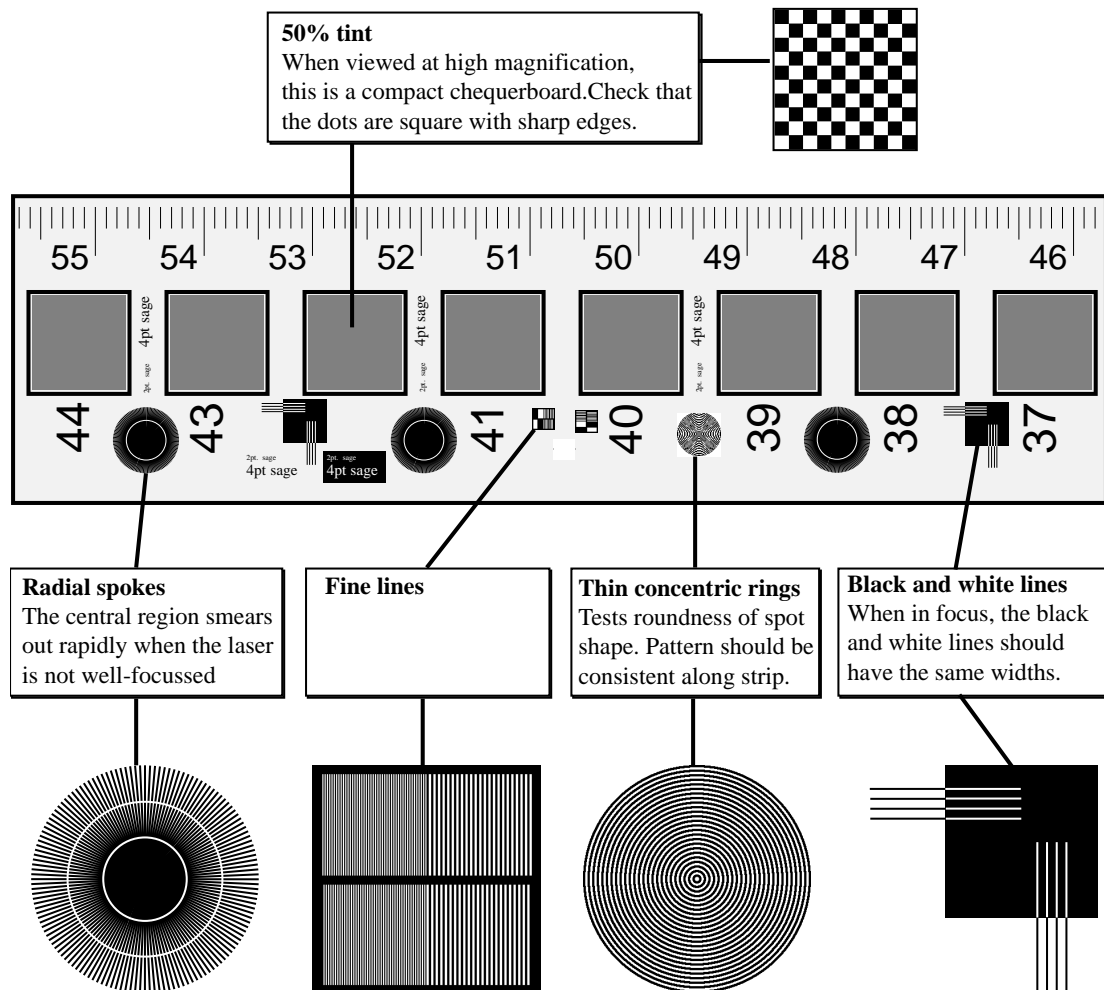
If the ideal focus varies across no more than three columns, this is acceptable. You should then select the middle column of those three. If the ideal focus varies across more than three columns, you should check with HighWater Designs as to whether further changes are needed.

When you have found the correct focus, look at the number you wrote as the label for the strip. This corresponds to the number of $1/32^{\text{nd}}$ s to turn the focus ring back to the focus for that strip.

C15.5 Completion

1. Shut down the software and switch off the machine.
2. Remove the preparation rig from the machine and reinstate the covers.

Features of the standard test image



C16. PLATINUM ENGINE SOFTWARE

C16.1 Introduction

This document describes the Platinum engine software, that is the software that is installed on the Platinum Processor Rack. The software for the front-end system is described separately.

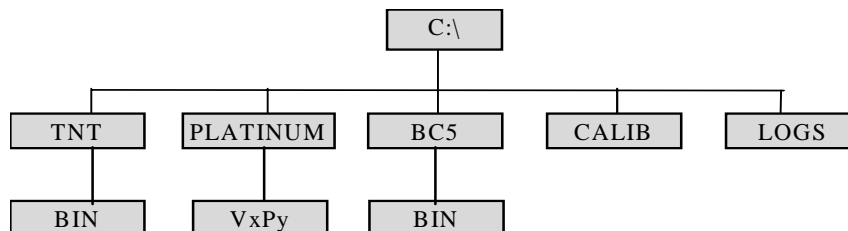
This document describes:

- The directory structure on the Platinum hard drive.
- Important batch files.
- Upgrade strategy.

For information about configuring individual boards in the Processor PC and the BIOS settings, refer to TR049.doc, *Processor Rack Configuration*.

C16.2 Engine Software

The platinum hard drive is organised as follows:



\TNT\BIN	This directory contains the binaries that are required for the tnt dos extender.
\BC5\BIN	This directory contains the binaries that are required for Borland 5 support.
\LOGS	This directory contains the daily engine log files. Note: Part of each log is stored in the engine software directory (\PLATINUM\VxBy) until the engine software has processed the .arg file and located the \LOGS directory .
\CALIB	This directory contains all the calibration files (version 6 and higher).

`\PLATINUM\VxBy` This directory contains the engine software. `VxBy` identifies the version number. For example, Version 6.1.0.0 is in `C:\PLATINUM\VxBy`.

C16.3 Useful Batch Files

You need to be aware of several batch files:

`c:\autoexec.bat` This boots the engine and initialises the DOS and memory manager.

`c:\platinum.bat` This is called by `autoexec.bat`. It sets up the path so the correct versions of the various software components are found. This will allow us to release new versions that might use either or all of newer versions of TNT, Borland, or Platinum software.

`c:\PLATINUM\VxBy\go.bat` This is called by `autoexec.bat` after calling `platinum.bat`, and ensures that the current version of engine software is executed.

C16.4 Upgrade Strategy

- Install any new software into a unique directory.
- Do not delete the previous version of the software. You may wish to delete versions prior to that.
- The `platinum.bat` is copied to `platinum.old` and a new `platinum.bat` is installed that points at the new version of code. (Is this manual or automatic?)

This strategy will allow you to revert quickly to the original software, by copying `platinum.old` (which sets the software path) to `platinum.bat`.

C17. DEC ALPHA CONFIGURATION

C17.1 Specification

The specification of the base system is subject to constant review and change. The intention is to have the most powerful platform solution available.

Hardware

The Dec Alpha workstations are purchased with a minimum of 128Mb RAM fitted. The current system specification is:-

- Minimum 128MByte RAM
- Fast Wide SCSI controller
- PCI graphics controller & 17" Monitor
- Network card: definable by customer.
- SCSI system drive
- CD-Rom drive
- Floppy drive
- Configurable fast-wide SCSI drives

A HW448 card is added at HighWater to connect to the Platinum.

Software

The system disk should have two partitions, one small partition (set up as C:) for the operating system (Windows NT 4.0 or later), and the remainder (set up as D:) for software, paging files etc.

The Platinum software and the Torrent RIP software is installed at HighWater and shipped with the Torrent dongle.

C17.2 Initial System Checks

The first task is to assemble the machine as delivered, and check that it conforms to the specification on the Purchase Order and Delivery Note.

Required Components

- Dec Alpha System (see previous section)
- HW 448 card
- Platinum cable
- NT software & manuals
- Torrent software & manuals
- Platinum software and manuals
- Optional software and manuals, including Spooler and InkDuct software

C17.3 Configuration Procedure

Hardware and System Software

1. Test that, when the system is assembled, the NT system will boot satisfactorily (this will ensure the integrity of the file system). Log in as **administrator** and examine the file system and disk partitions to check all is well.
2. Power down the system and observe ESD (Static) precautions. Insert the HW448 card in a spare PCI slot. It may be necessary or desirable to move the existing SYMBIOS disk controller because of physical cable/connector constraints.
3. Power on the system and check that NT boots correctly. If not, then it may be due to the ordering of the SYMBIOS and HW448 cards within the PCI bus. Either switch the positions of the cards or use the BIOS menu to edit the NT boot hardware configuration:
4. Use Supplementary menu \Rightarrow Boot Management menu \Rightarrow Hardware Configuration menu. Change the values from SCSI(0) to SCSI(1).
5. Note the changes made. Reboot the system and check NT operation.
6. Power down the system and observe ESD (Static) precautions. Connect the SCSI cable extension (IDC to Honda) connector to the end of the narrow SCSI bus.

***Note:** Check the SCSI bus termination, and, if necessary, remove the termination from the CD-Rom drive. (Remove the Termination jumper on the configuration pins adjacent to the SCSI connector.)*

7. Label the narrow SCSI, the wide SCSI and also the Platinum connectors for easy identification.
8. Use the NT Administrative Tools to determine the available SCSI ids on the bus.
9. Use Windows NT diagnostics ⇒ Tools ⇒ Registry Editor ⇒ H-Key-LOCAL-MACHINE ⇒ Hardware ⇒ Devicemap SCSI to check ids. If not already used, set the Fast Wide disks to ids 5 & 6 and connect to the wide (68 pin) connector. Ensure the external box is correctly terminated.
10. Power on the system and check the SCSI visibility using the BIOS menus. If the disks are not visible, check the cable connections.
11. Boot NT and use the Disk Administration tool to create an 8 Gigabyte Stripe set partition across the two Wide disks. Use Quick Format to save time. Ensure the Stripe set is configured as drive K:
12. Obtain the Microsoft developer CD and copy the Service Pack 5 ALPHA directory onto partition D:. Run setup.exe in the SP5:ALPHA directory on the D: drive to ensure to operating system mods are current.
13. Test copy the contents of the SP5 directory from the CD-Rom to the K: partition, back onto the D: drive. This will test the SCSI bus termination.
14. Load the HighWater Disk profiler and ensure the performance of the Stripe set is around 8 MBytes/second.

HighWater Application Software

Refer to the Platinum Installation Guide for information about the Calibration Tool and RIP page set-ups.

1. Log in as Administrator, and use the User administration tools to create a user called `Platinum` with no password and 'administrator' capabilities **only**. Next create a user called `Engineer` with the password `highwater` and 'administrator' capabilities.
2. Log in as `Platinum` and load the Platinum GUI on the `D:` partition, following the instructions on the floppy disks. Log off.
3. Then log in as `Engineer` and load the engineering software. Log off.

4. Log back in as `Platinum` and change the user privileges to 'Power User' only.
5. Edit `plotter.cfg` so that the drive letter for the `PLOTDATA` directory is the same as the drive letter that you used to install the Platinum GUI (the Stripe set partition, normally `K:`).
6. Load the Torrent RIP software. Follow the instructions in the Torrent Manual. Don't forget to set the Torrent directory to `TORRENT`. (Its default is `HIGHWA`) and set **Zero Large System Cache Registry Key** and **Auto-Start Rip on Reset** options on the first dialog. Remember to install the Dongle and the Appletalk drivers (Macintosh Services on NT Server)..
7. Fit the dongle to the parallel port and check operation by booting up the RIP. Remember to set low priority on the RIP by adding `/pidle` to the Shortcuts of the Properties of the Torrent program in the Startup and Platinum Executables program groups. To do this, select the right mouse button on the **Start** Icon on the Start Menu bar and select **Open**. Click on **Programs**, then **Startup**. Select the right mouse button on the **Torrent** program and select the **Properties** menu. Select **shortcut** and then enter `/pidle` at the end of the target directory. Repeat for the **Torrent** program in the **Torrent** program group.
8. Make sure that the RIP PageBuffer and Workspace directories, and the RIP memory are set up correctly. Login as `Platinum`. The Torrent RIP should start automatically. If the Inputs have already been started, click on **Start Inputs** to deselect it (stop inputs). Click on **Configure Rip**. Set up both the PageBuffer and the Workspace directories to point to the striped drive (normally the `K:` drive).
9. Then click on **Options**, and make sure the following settings apply:

Minimum Memory:	Set to 30000
Memory for RIP:	Make sure that the box is checked, set the value to 80000.

Note: Installation engineers must also make sure that the page set-ups are configured correctly for Platinum (32-bit aligned and single-strip). We recommend that engineers copy the default page set-ups if they need to create additional ones for the customer. This is not part of the Production and Test procedure.

Setting up the Platinum Calibration Tool

1. Login as Engineer. The CalTool should start automatically
2. Click on the **Plate** button and enter the following values.

On Laser Power Test Image:	Set Width = 25.40,	Set Gap = 1.00
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On Scaling Test Image: Set Width = 558.80, Set Depth = 25.40
On Plate Size: Set Width = 550.00, Set Depth = 558.80
On Exposure: Check the Positive Plate checkbox.
Click on the OK button

3. Click on the **Variables** button
4. Click on the **Tplot Executable** button and select:
D:\Platinum\LevelnPn\TPLOTW.exe (where n relates to the release version).
Click on the OK button.
5. Click on the **Archived Cal Sets** button and select:
D:\Platinum\LevelnPn\engine_calibrations (where n relates to the release version). Click on the OK button.
6. Click on the **Platinum Log Files** button and select:
D:\Platinum\LevelnPn\engine_logs (where n relates to the release version).
Click on the OK button.
7. Click on the OK button, and click **Done** on the Main Dialog.

C17.4 Check List

Checked	Installation Step	Refer to:
<input type="checkbox"/>	Check the Dec Alpha system - against the current spec and that it boots up.	Section 3; Section 4.1, step 1.
<input type="checkbox"/>	Add the HW448 card and the SCSI extension and test.	Section 4.1, steps 2 to 5.
<input type="checkbox"/>	Add the Fast Wide Disks and test. Check that the SCSI drivers are installed for the two fast SCSI drives (currently Adaptec 294x/AIC 78xx(PCI) and/or NCR).	Section 4.1, steps 6 to 8.
<input type="checkbox"/>	Use SP5 to ensure that the operating system mods are current and to test the SCSI bus termination. Use the HighWater Disk profiler to check the performance of the Stripe set.	Section 4.1, steps 9 to 10. Section 4.1, step 11.
<input type="checkbox"/>	Create a Platinum and Engineer login as Administrator. Load the Platinum software and the engineering software. Set the Platinum login to a Pwer User only. Edit plotter.cfg so that PLOTDATA points to the Stripe set partition.	Section 4.2, steps 1 to 4.

<input type="checkbox"/>	Load the Torrent RIP, install the dongle and check the RIP pagebuffers and workspace directories, and the RIP memory set-up.	Section 4.2, steps 5 to 7.
<input type="checkbox"/>	Set up the Platinum Calibration Tool.	Section 4.3.
<input type="checkbox"/>	Attach all labels and the serial number. Make sure that all the relevant manuals and cables are packed with the machine.	